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CHERWELL DISTRICT LOCAL PLAN
Land at Gowell Farm Bicester Oxfordshire

Agricultural Land Classification
ALC Map and Summary Report

December 1998

Resource Planning Team
Eastern Region
FRCA Reading

RPT Job Number 3301/079/98
MAFF Reference EL 33/01588

AGRICULTURAL LAND CLASSIFICATION SUMMARY REPORT

LAND AT GOWELL FARM BICESTER OXFORDSHIRE

INTRODUCTION

1 This summary report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 46 hectares of land at Gowell Farm on the northern edge of Bicester in Oxfordshire The survey was carried out during December 1998

2 The work was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture Fisheries and Food (MAFF) The survey was carried out in connection with MAFF s statutory input to the review of the Cherwell District Local Plan This survey supersedes any previous ALC information for this land

3 The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF 1988) A description of the ALC grades and subgrades is given in Appendix I

4 At the time of survey the land use on the site was a mixture of cereals recently ploughed land and grass ley The areas mapped as Other land include a residential property farm buildings a trackway and a water storage area

SUMMARY

5 The findings of the survey are shown on the enclosed ALC map The map has been drawn at a scale of 1 10 000 It is accurate at this scale but any enlargement would be misleading

6 The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3b Other land	45 2 0 8	98 3 N/A	98 3 1 7
Total surveyed area Total site area	46 0 46 0	100	100 100

7 The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land A total of 45 borings and 3 soil pits was described

[1] FRCA is an executive agency of MAFF and the Welsh Office

8 All of the agricultural land at this site has been classified as Subgrade 3b (moderate quality) The principal limitation to land quality is soil droughtiness with soil wetness also being restricting on occasions

9 The majority of soil profiles were impenetrable to the auger at shallow depths over limestone The presence of very high volumes of hard limestone in the subsoil severely restricts the amount of water in the profile for plant growth and reduces the potential rooting depth for crops The combination of soil textures and stone contents together with the local climatic regime limits this land to Subgrade 3b on the basis of a soil droughtiness limitation

10 Where soil wetness is the main limiting factor profiles typically comprise clay loam topsoils which overlie poorly structured clayey horizons at shallow depths Soil drainage is impeded by the presence of these clayey horizons and the resultant waterlogging restricts seed germination and growth as well as limiting when cultivations or grazing can occur without causing structural damage to the soil

FACTORS INFLUENCING ALC GRADE

Climate

11 Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics

12 The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met Office 1989)

Table 2 Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SP 565 234	SP 566 240
Altitude	m AOD	84	87
Accumulated Temperature	day C (Jan June)	1409	1405
Average Annual Rainfall	mm	677	681
Field Capacity Days	days	146	147
Moisture Deficit Wheat	mm	103	103
Moisture Deficit Potatoes	mm	94	93
Overall climatic grade	N/A	Grade 1	Grade 1

13 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions

14 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR) as a measure of overall wetness and accumulated temperature (AT0 January to June) as a measure of the relative warmth of a locality

15 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation The site is not believed to be frost prone or suffer from exposure Consequently the site may be considered as being climatically Grade 1 Climatic factors do however interact with soil properties to influence soil wetness and soil droughtiness

Site

16 The survey area lies between approximately 83m and 88m AOD and is level The site is not affected by any site restrictions such as gradient microrelief or flooding

Geology and soils

17 The most detailed published geological information for this site (GS of Gt Britain 1863) shows the whole survey area to be underlain by Cornbrash

18 The most recent published soils information covering the area (SSEW 1983) shows the survey area to comprise soils from the Aberford Association These soils are described as shallow locally brashy well drained calcareous fine loamy soils over limestone in places shallow and brashy Some deeper calcareous soils in colluvium (SSEW 1983) Soils encountered across the area surveyed are consistent with this description

AGRICULTURAL LAND CLASSIFICATION

19 The details of the classification of the survey area are shown on the attached ALC map and the area statistics of each grade are given in Table 1

20 The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II

Subgrade 3b

21 Subgrade 3b moderate quality land occurs throughout the whole area surveyed The land was found to have a significant soil droughtiness limitation Soils comprise a very slightly to moderately stony (3 20% hard limestone fragments by volume) medium clay loam medium silty clay loam or heavy clay loam non calcareous topsoil These pass into predominantly heavy clay loam upper subsoils which are impenetrable to the soil auger (from 22 90 cm) Pits 1 2 and 3 (see Appendix II) are typical of the range of soils that exist on the site Pit 1 in the centre of the site comprises a slightly stony (10% total by volume 2% > 2cm in size) medium silty clay loam passing to a very stony (50% by volume) heavy clay loam upper subsoil overlying bedrock at a depth of 37 cm Pit 2 in the northern area illustrates the droughtiest conditons that occur and is actually classified as Grade 4 It comprises a moderately stony (20% total by volume 7% > 2cm in size) medium clay loam overlying a very stony (51% by volume) heavy clay loam upper subsoil This overlies a layer of limestone flags to a depth of 58 cm Pit 3 in the south illustrates the least droughty conditions that occur Although it was only possible to describe the soil resource down to 65 cm the resource continues further and the pit will probably qualify for a droughtiness grade of Subgrade 3a It consists of a very slightly stony (5% total by volume 0% > 2cm in size)

medium clay loam topsoil This passes to a moderately stony (30% by volume) heavy clay loam overlying a very stony (45% by volume) heavy clay loam lower subsoil

22 Despite the occurrence of soils with slightly better and worse characteristics only one map unit of Subgrade 3b has been identified it was not possible to pull out separate map units at this scale of survey A significant droughtiness limitation such as this will manifest itself in insufficient water supplies to the crops at critical times of the growing season This will result in lower and less consistent yields particularly in drier years

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SOURCES OF REFERENCE

Geological Survey of Great Britain (1863) *Sheet No 45 S E (Old Series)* Banbury 1 inch to 1 mile Solid Edition

Ministry of Agriculture Fisheries and Food (1988) *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land* MAFF London

Met Office (1989) *Climatological Data for Agricultural Land Classification* Met Office Bracknell

Soil Survey of England and Wales (1983) *Sheet 6 Soils of South East England 1 250 000* SSEW Harpenden

Soil Survey of England and Wales (1984) *Soils and their Use in South East England* SSEW Harpenden

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1 Excellent Quality Agricultural Land

Land with no or very minor limitations to agricultural use A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit soft fruit salad crops and winter harvested vegetables Yields are high and less variable than on land of lower quality

Grade 2 Very Good Quality Agricultural Land

Land with minor limitations which affect crop yield cultivations or harvesting A wide range of agricultural or horticultural crops can usually be grown but on some land of this grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops The level of yield is generally high but may be lower or more variable than Grade 1 land

Grade 3 Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops the timing and type of cultivation harvesting or the level of yield When more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2

Subgrade 3a Good Quality Agricultural Land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops especially cereals or moderate yields of a wide range of crops including cereals grass oilseed rape potatoes sugar beet and the less demanding horticultural crops

Subgrade 3b Moderate Quality Agricultural Land

Land capable of producing moderate yields of a narrow range of crops principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year

Grade 4 Poor Quality Agricultural Land

Land with severe limitations which significantly restrict the range of crops and/or the level of yields It is mainly suited to grass with occasional arable crops (e g cereals and forage crops) the yields of which are variable In moist climates yields of grass may be moderate to high but there may be difficulties in utilisation The grade also includes very droughty arable land

Grade 5 Very Poor Quality Agricultural Land

Land with severe limitations which restrict use to permanent pasture or rough grazing except for occasional pioneer forage crops

APPENDIX II

SOIL DATA

Contents

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF:** national 100 km grid square and 8 figure grid reference.

2. **USE:** Land use at the time of survey. The following abbreviations are used:

ARA:	Arable	**WHT:**	Wheat	**BAR:**	Barley
CER:	Cereals	**OAT:**	Oats	**MZE:**	Maize
OSR:	Oilseed rape	**BEN:**	Field beans	**BRA:**	Brassicae
POT:	Potatoes	**SBT:**	Sugar beet	**FCD:**	Fodder crops
LIN:	Linseed	**FRT:**	Soft and top fruit	**FLW:**	Fallow
PGR:	Permanent pasture	**LEY:**	Ley grass	**RGR:**	Rough grazing
SCR:	Scrub	**CFW:**	Coniferous woodland	**OTH**	Other
DCW:	Deciduous woodland	**BOG:**	Bog or marsh	**SAS:**	Set-Aside
HTH:	Heathland	**HRT:**	Horticultural crops	**PLO:**	Ploughed

3. **GRDNT:** Gradient as estimated or measured by a hand-held optical clinometer.

4. **GLEY/SPL:** Depth in centimetres (cm) to gleying and/or slowly permeable layers.

5. **AP (WHEAT/POTS):** Crop-adjusted available water capacity.

6. **MB (WHEAT/POTS):** Moisture Balance. (Crop adjusted AP - crop adjusted MD)

7. **DRT:** Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column:

MREL:	Microrelief limitation	**FLOOD:**	Flood risk	**EROSN:**	Soil erosion risk
EXP:	Exposure limitation	**FROST:**	Frost prone	**DIST:**	Disturbed land
CHEM:	Chemical limitation				

9. **LIMIT:** The main limitation to land quality. The following abbreviations are used:

OC:	Overall Climate	**AE:**	Aspect	**ST:**	Topsoil Stoniness
FR:	Frost Risk	**GR:**	Gradient	**MR:**	Microrelief
FL:	Flood Risk	**TX:**	Topsoil Texture	**DP:**	Soil Depth
CH:	Chemical	**WE:**	Wetness	**WK:**	Workability
DR:	Drought	**ER:**	Erosion Risk	**WD:**	Soil Wetness/Droughtiness
EX:	Exposure				

Soil Pits and Auger Borings

1. **TEXTURE:** soil texture classes are denoted by the following abbreviations:

S:	Sand	**LS:**	Loamy Sand	**SL:**	Sandy Loam
SZL:	Sandy Silt Loam	**CL:**	Clay Loam	**ZCL:**	Silty Clay Loam
ZL:	Silt Loam	**SCL:**	Sandy Clay Loam	**C:**	Clay
SC:	Sandy Clay	**ZC:**	Silty Clay	**OL:**	Organic Loam
P:	Peat	**SP:**	Sandy Peat	**LP:**	Loamy Peat
PL:	Peaty Loam	**PS:**	Peaty Sand	**MZ:**	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

F: Fine (more than 66% of the sand less than 0.2mm)
M: Medium (less than 66% fine sand and less than 33% coarse sand)
C: Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content:
M: Medium (<27% clay) **H:** Heavy (27-35% clay)

2. **MOTTLE COL:** Mottle colour using Munsell notation.

3. **MOTTLE ABUN**: Mottle abundance, expressed as a percentage of the matrix or surface described:

   F: few <2% **C**: common 2-20% **M**: many 20-40% **VM**: very many 40% +

4. **MOTTLE CONT**: Mottle contrast:

   F: faint - indistinct mottles, evident only on close inspection
   D: distinct - mottles are readily seen
   P: prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL**: Ped face colour using Munsell notation.

6. **GLEY**: If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH**: Stone Lithology - one of the following is used:

HR:	all hard rocks and stones	**FSST**:	soft, fine grained sandstone
ZR:	soft, argillaceous, or silty rocks	**CH**:	chalk
MSST:	soft, medium grained sandstone	**GS**:	gravel with porous (soft) stones
SI:	soft weathered igneous/metamorphic rock	**GH**:	gravel with non-porous (hard) stones

   Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT**: the degree of development, size and shape of soil peds are described using the following notation:

Degree of development	**WK**:	weakly developed	**MD**:	moderately developed
	ST:	strongly developed		
Ped size	**F**:	fine	**M**:	medium
	C:	coarse		
Ped shape	**S**:	single grain	**M**:	massive
	GR:	granular	**AB**:	angular blocky
	SAB:	sub-angular blocky	**PR**:	prismatic
	PL:	platy		

9. **CONSIST**: Soil consistence is described using the following notation:

L: loose	**FM**: firm	**EH**: extremely hard
VF: very friable	**VM**: very firm	
FR: friable	**EM**: extremely firm	

10. **SUBS STR**: Subsoil structural condition recorded for the purpose of calculating profile droughtiness:
    G: good **M**: moderate **P**: poor

11. **POR**: Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.

12. **IMP**: If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.

13. **SPL**: Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

14. **CALC**: If the soil horizon is calcareous, a 'Y' will appear in this column.

15. Other notations:

APW:	available water capacity (in mm) adjusted for wheat
APP:	available water capacity (in mm) adjusted for potatoes
MBW:	moisture balance, wheat
MBP:	moisture balance, potatoes

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS- CLASS	GRADE	-WHEAT AP	MB	POTS AP	MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SP56602400	PLO					1	1	53	50	53	-41	3B				DR	3B	IMP30
2	SP56702400	PLO					1	1	65	38	65	29	3B				DR	3B	IMP39
3	SP56602390	PLO					1	1	53	50	53	-41	3B				DR	3B	IMP30
4	SP56702390	PLO					1	1	121	18	113	19	2				DR	2	I90 WET 85
5	SP56582371	PLO					1	1	48	55	48	-46	4				DR	3B	IMP28
6	SP56702380	PLO					1	1	74	29	74	20	3B				DR	3B	IMP45
7	SP56502370	PLO					1	1	46	57	46	-48	4				DR	3B	IMP28
8	SP56602370	PLO					1	1	87	16	89	5	3A				DR	3A	IMP52
9	SP56702370	PLO		57	57		3	3A	115	12	108	14	2				WE	3A	
10	SP56502360	PLO					1	1	69	34	69	25	3B				DR	3B	IMP40 SEE 1P
11	SP56602360	PLO					1	1	50	53	50	44	4				DR	3B	IMP28 SEE 1P
12	SP56702360	PLO					1	1	39	64	39	55	4				DR	3B	IMP22 SEE 1P
13	SP56802360	PLO		25	60		3	2	128	25	106	12	2				WD	2	
14	SP56902360	PLO					1	1	64	39	64	30	3B				DR	3B	IMP39
15	SP56402350	PLO		35	35		4	3B	104	1	102	8	3A				WE	3B	
16	SP56502350	PLO					1	1	44	59	44	50	4				DR	3B	IMP30 SEE 1P
18	SP56702350	PLO					1	1	52	51	52	-42	4				DR	3B	IMP35 SEE 1P
19	SP56802350	PLO					1	1	38	65	38	56	4				DR	3B	IMP22 SEE 1P
20	SP56302340	LEY					1	2	77	26	77	17	3B				DR	3B	IMP50
21	SP56402340	OTH					1	1	62	41	62	32	3B				DR	3B	IMP38
22	SP56502340	CER		35	35		4	3B	97	6	101	7	3A				WE	3B	
23	SP56602340	PLO					1	1	53	50	53	-41	3B				DR	3B	IMP30 SEE 1P
24	SP56702340	PLO					1	1	60	-43	60	34	3B				DR	3B	IMP40 SEE 1P
25	SP56302330	LEY					1	2	51	52	51	43	4				DR	3B	IMP30
26	SP56422330	CER					1	1	60	43	60	34	3B				DR	3B	IMP37
27	SP56502330	CER							49	54	49	45	4				DR	3B	IMP30
28	SP56602330	CER					1	1	39	64	39	55	4				DR	3B	IMP25
30	SP56212325	LEY					1	2	51	52	51	43	4				DR	3B	IMP30
31	SP56302320	LEY					1	2	51	52	51	43	4				DR	3B	IMP30
32	SP56402320	CER					1	1	49	54	49	45	4				DR	3B	IMP30
33	SP56502320	CER					1	1	52	51	52	42	4				DR	3B	IMP32
34	SP56602320	CER					1	1	39	64	39	55	4				DR	3B	IMP27
35	SP56202310	CER	N	1			1	1	44	59	44	50	4				DR	3B	IMP25
36	SP56302310	CER					1	1	77	26	77	17	3B				DR	3B	WET 35
37	SP56402310	CER					1	1	42	61	42	52	4				DR	3B	IMP25
38	SP56502310	CER					1	1	50	53	50	44	3B				DR	3B	IMP30
39	SP56202300	CER					1	1	61	-42	61	33	3B				DR	3B	IMP37
41	SP56402300	CER					1	1	80	23	80	14	3B				DR	3B	IMP50
42	SP56502300	CER					1	1	57	46	57	37	3B				DR	3B	IMP32
43	SP56102290	CER					1	1	45	58	45	-49	4				DR	3B	IMP28
44	SP56202290	CER		45			2	2	87	16	93	1	3A				DR	3A	IMP58
45	SP56302290	CER					1	1	49	54	49	45	4				DR	3B	IMP30

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	-WETNESS CLASS	-WETNESS GRADE	-WHEAT AP	-WHEAT MB	POTS AP	POTS MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
46	SP56402290	CER					1	1	107	4	114	20	3A				DR	3A	IMP75
47	SP56352382	CER					1	1	51	52	51	43	4				DR	3B	IMP30
1P	SP56502350	CER					1	1	54	-49	54	-40	3B				DR	3B	ROOTS TO 37
2P	SP56652384	PLO					1	1	41	62	42	52	4				DR	4	ROOTS TO 58
3P	SP56292305	PLO	E	1			1	1	77	26	82	12	3B				DR	3A	PIT65 WET 58

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
1	0 30	MZCL	10YR43						4	0	HR	8							IMP LIMESTONE
2	0 30	MZCL	10YR43						4	0	HR	8							
	30 39	HCL	10YR44						0	0	HR	15		M				Y	IMP LIMESTONE
3	0 27	MZCL	10YR43						2	0	HR	5							
	27 30	HCL	10YR44						0	0	HR	10		M				Y	IMP LIMESTONE
4	0 28	MZCL	10YR43						3	0	HR	6							
	28 48	HCL	10YR44						0	0	HR	2		M				Y	
	48 90	HCL	10YR44						0	0	HR	10		M				Y	IMP LIMESTONE
5	0 28	MCL	10YR43						3	0	HR	6							IMP LIMESTONE
6	0 27	MZCL	10YR43						3	0	HR	6							
	27 45	HCL	10YR44						0	0	HR	10		M				Y	IMP LIMESTONE
7	0 24	MCL	10YR43						4	2	HR	8							
	24 28	MCL	10YR44						0	0	HR	10		M				Y	IMP LIMESTONE
8	0-29	MZCL	10YR43						2	0	HR	5							
	29 52	HCL	10YR44						0	0	HR	2		M					IMP LIMESTONE
9	0 28	MCL	10YR43						3	0	HR	6							
	28 40	HCL	10YR44						0	0	HR	5		M					
	40 57	C	10YR4454	10YR58	C	D		S	0	0	HR	2		M				Y	
	57 100	C	25Y6472	10YR5658	M	D		Y	0	0	HR	5		P		Y		Y	PLASTIC
10	0 30	MZCL	10YR43						2	0	HR	5							
	30 40	HCL	10YR44						0	0	HR	10		M				Y	IMP LIMESTONE
11	0 28	MZCL	10YR43						3	2	HR	6							IMP LIMESTONE
12	0 22	MZCL	10YR43						6	0	HR	8							IMP LIMESTONE
13	0 25	MCL	10YR43						2	0	HR	5						Y	
	25-60	HCL	25Y74	10YR58	M	D		Y	0	0	HR	5		M				Y	
	60 120	C	05Y61	10YR58	M	D		Y	0	0	HR	5		P		Y		Y	PLASTIC
14	0 25	MCL	10YR43						6	0	HR	8							
	25-39	HCL	10YR44						0	0		0		M				Y	IMP LIMESTONE
15	0 22	MZCL	10YR4243						2	0	HR	5							
	22 35	HCL	10YR54						0	0	HR	2		M					
	35-90	C	25Y 5272	10YR5658	M	D		Y	0	0	HR	5		P		Y		Y	PLASTIC
16	0 25	MZCL	10YR4342						4	2	HR	8							IMP LIMESTONE

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
18	0-25	MCL	10YR43						7	2	HR	15							
	25-35	HCL	10YR54						0	0	HR	15		M					IMP LIMESTONE
19	0-19	MZCL	10YR43						6	0	HR	8						Y	
	19 22	HCL	10YR44						0	0		0		M				Y	IMP LIMESTONE
20	0-30	HCL	10YR43						0	0	HR	5							
	30-50	HCL	10YR44						0	0	HR	20		M				Y	IMP LIMESTONE
21	0-24	MCL	10YR43						0	0	HR	5							
	24-38	MCL	10YR44						0	0	HR	5		M				Y	IMP LIMESTONE
22	0 35	MCL	10YR43						0	0	HR	6							
	35-80	C	05Y 6263	10YR5658	C	D		Y	0	0	SLST	5		P		Y		Y	PLASTIC
23	0 28	MZCL	10YR4342						3	0	HR	6							
	28 30	HCL	10YR44						0	0	HR	10		M				Y	
24	0 22	MCL	10YR43						7	2	HR	15							
	22 40	HCL	10YR54						0	0	HR	10		M					IMP LIMESTONE
25	0 30	HCL	10YR43						3	0	HR	6							IMP LIMESTONE
26	0 30	MCL	10YR43						4	2	HR	10							
	30 37	HCL	10YR44						0	0	HR	5		M					IMP LIMESTONE
27	0 30	MCL	10YR43						4	2	HR	10							IMP LIMESTONE
28	0 25	MZCL	10YR43						7	2	HR	20							IMP LIMESTONE
30	0 30	HCL	10YR43						0	0	HR	5							IMP LIMESTONE
31	0 30	HCL	10YR43	10YR43					0	0	HR	5							IMP LIMESTONE
32	0 30	MCL	10YR43						0	0	HR	5							IMP LIMESTONE
33	0 32	MCL	10YR43						4	2	HR	10							IMP LIMESTONE
34	0 27	MCL	10YR43						7	4	HR	20							IMP LIMESTONE
35	0-25	MZCL	10YR43						4	0	HR	8							IMP LIMESTONE
36	0-30	MZCL	10YR43						0	0	HR	3							
	30-45	HCL	10YR4446						0	0	HR	10		M				Y	IMP LIMESTONE
37	0 25	MCL	10YR43						3	0	HR	6							IMP LIMESTONE
38	0-30	MCL	10YR43						4	2	HR	8							IMP LIMESTONE

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
39	0 25	MCL	10YR33						3	0	HR	6							
	25-37	MCL	10YR44						0	0	HR	3		M					IMP LIMESTONE
41	0-27	MCL	10YR43						2	0	HR	5							
	27 50	HCL	10YR44						0	0	HR	8		M				Y	IMP LIMESTONE
42	0 32	MZCL	10YR43						3	0	HR	6							IMP LIMESTONE
43	0 27	MCL	10YR43						3	0	HR	8							IMP LIMESTONE
44	0-30	MCL	10YR4243						2	0	HR	5							
	30-45	C	10YR5456						0	0	HR	5		M				Y	
	45-58	C	25Y 73	10YR56	C	D		Y	0	0	HR	10		M				Y	
45	0 30	MCL	10YR43						5	0	HR	10							IMP LIMESTONE
46	0 30	MCL	10YR43						2	0	HR	5							
	30 75	HCL	10YR44						0	0	HR	2		M					IMP LIMESTONE
47	0 30	MCL	10YR43						0	0	HR	5							IMP LIMESTONE
1P	0 26	MZCL	10YR4243						6	2	HR	10							
	26 37	HCL	10YR44						0	0	HR	50		M				Y	
	37 40	HR							0	0		0							
2P	0-20	MCL	10YR42						13	7	HR	20							
	20-32	HCL	10YR43						0	0	HR	51		M				Y	
	32 58	HR							0	0		0							
3P	0 26	MCL	10YR42						2	0	HR	5							
	26-41	HCL	10YR54						0	0	HR	30		M				Y	
	41 65	HCL	10YR54						0	0	HR	45		M				Y	